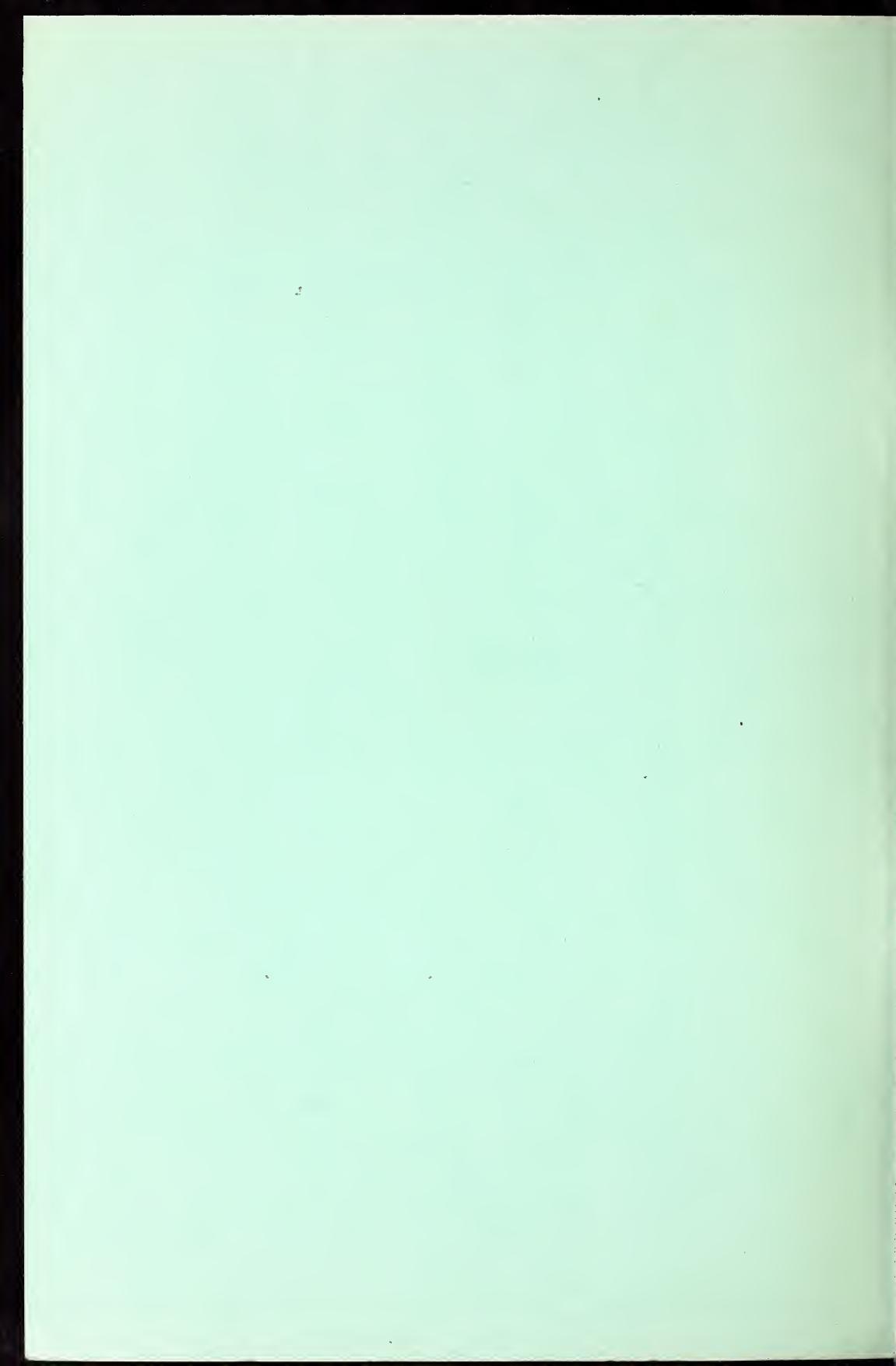


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**FIRST REGIONAL CONFERENCE
ON
MENTAL MEASUREMENTS
OF THE BLIND**

SAMUEL P. HAYES, Ph.D.

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**PERKINS INSTITUTION
and
MASSACHUSETTS SCHOOL FOR THE BLIND
WATERTOWN 72, MASS.**

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The First Regional Conference on Mental Measurements of the Blind

SAMUEL P. HAYES, PH.D.

Over the week-end of October 26-28, 1951 Perkins was pleased to entertain seventeen delegates from Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, West Virginia, Kentucky and Michigan. With eleven interested people from schools and agencies in the Boston area and one from Finland, augmented by eighteen members of the Perkins staff (five of whom contributed to the program), and by seventeen members of the current Harvard-Perkins Teacher-Training class, at least fifty people were present at each session, seated in comfortable arm chairs in the Perkins Staff Lounge.

In general the program followed the outline sent with the invitations. This had been phrased in questionnaire form, with the request that our colleagues check the topics they would like to have discussed—or omitted—and requesting that substitute speakers be suggested to take over any of the sections tentatively assigned to members of the Perkins staff, and to list other topics and speakers. Many helpful suggestions were made, though no omissions of topics were proposed, and one correspondent indicated an additional pertinent topic, which he later graciously agreed to present in a prepared paper.

I. SYMPOSIUM ON INTELLIGENCE TESTS

The first session was opened shortly after 2 P. M. Friday by Mr. Edward J. Waterhouse, Director of Perkins Institution, who welcomed the guests, introduced the company to one another by asking each person to rise and give his name, position and school or agency, and then acted as Chairman. The first speech, by *Dr. Samuel P. Hayes*, Perkins Institution and American Foundation for the Blind, was planned as an introduction to the whole conference. Outlining the Perkins testing program, the importance of tests in educational and vocational guidance became obvious. Perkins gives each pupil an individual intelligence test before, or shortly after, admission—with young children, as soon

as a child seems well adjusted to his new environment—and retests at three to four year intervals as long as a child remains in school, with a final test in his last months. For such a program, alternative tests must be used, to avoid the influence of memory, and at present four scales are available which give results showing high intercorrelations: the Interim Hayes-Binet which we generally use first with Lower School children; the Wechsler-Bellevue Adult Intelligence Scale Forms I and II, which we commonly use first with Upper School children; and the Wechsler Intelligence Scale for Children. Distributions of IQ's obtained from the use of the Interim-Hayes Binet and the Wechsler scale, Form I were passed around and explained: a first table A, based on 501 *first* tests at Perkins with the Interim Hayes-Binet; a second table B, based on 350 *first* tests at Perkins with the Wechsler scale Form I; and other tables based upon lesser numbers of pupils in other schools. Tables A and B on pages 6 and 7.

An inspection of all the tables, including A and B, shows that from 30-40% of the IQ's fall in the "Average Group" in contrast to 50% for the seeing; that larger percents of superior pupils are found among the blind; that considerably larger percents of the blind test below average, with from 10 to 18% falling in the "Mentally defective" group in the distributions for the Interim Hayes-Binet tests, where only 2% is expected among the seeing. This accumulation of "defectives" is to be explained as the result of the admission of many children of doubtful ability, often handicapped in their development by restriction of activity, parental over-solicitude or lack of basal security, and by the presence of additional handicaps; such as, hearing loss, cerebral palsy, etc. As the years go on many of these doubtful cases blossom out in a favorable school environment; others are given a chance in special classes where the emphasis is put upon hand work; the uneducable are gradually transferred to institutions for the feeble minded. This situation is clearly shown in the distribution (Table B) for the Wechsler-Bellevue Scale, Form I—a scale which is used only down to the fourth grade and the tenth year of age, thus not including the small, retarded children. At Perkins and at two of the other three schools reporting their results, we have found only 2% mentally defective on the Wechsler-Bellevue Scale, the same % reported by Wechsler for the seeing.

Achievement tests are given each year from the 4th through the 9th grade at Perkins, yielding individual records of progress in nine departments of school work to compare with teachers' grades and the native ability indicated by the intelligence tests. Class profiles and charts give a basis for comparison of adjoining grades and of the individual in his class setting. Perkins has used all 10 forms of the Stanford Achievement Test, and will this year use the third form of the Metropolitan Achievement Tests, and recommends the use of both series. Perkins will be pleased to loan to other schools our stencil keys for correcting these achievement tests and save the local tester the considerable time required for making new stencils.

A selected list of references on testing the blind was passed around, the recently published Manual for the Psychological Examination of the Adult Blind by Bauman and Hayes was recommended, and a large collection of tests put on exhibition, for study by the delegates.

As an introduction to the method of giving an individual intelligence test to a blind child, *Mrs. Jane Smith Davis*, Psychometrist at Perkins Institution, demonstrated the technique of Binet testing, using as a subject a nine year old boy blind from birth, chosen because we thought he would not be disturbed by the group observing him. After demonstrating the method of gaining rapport and setting him at ease, she proceeded with the regular test items in the Interim Hayes-Binet tests, while the audience followed the test from copies in their hands. Her selection of a subject was a happy one, as the boy readily adjusted himself to the situation, responded naturally and often with humor, in a clear voice easily heard by all, even when he sprawled on the table which was a bit too high for him. After the test the discussion brought out the reasons for various details in the test procedure, members of the audience with former testing experience enlightening others who had only a reading knowledge of the technique.

Miss Frances E. Marshall, Social Worker at Perkins Institution, then discussed the use of test results at Perkins in the admission and dismissal of pupils, citing many interesting case histories, in which IQ or MA were taken into account in connection with family background, parental attitudes toward and

Table A

First tests of all Perkins pupils (501) September, 1940 to June, 1950 inclusive with the Interim Hayes-Binet Intelligence Tests for the Blind 1942. Mean IQ 100 SD 21.56

No.

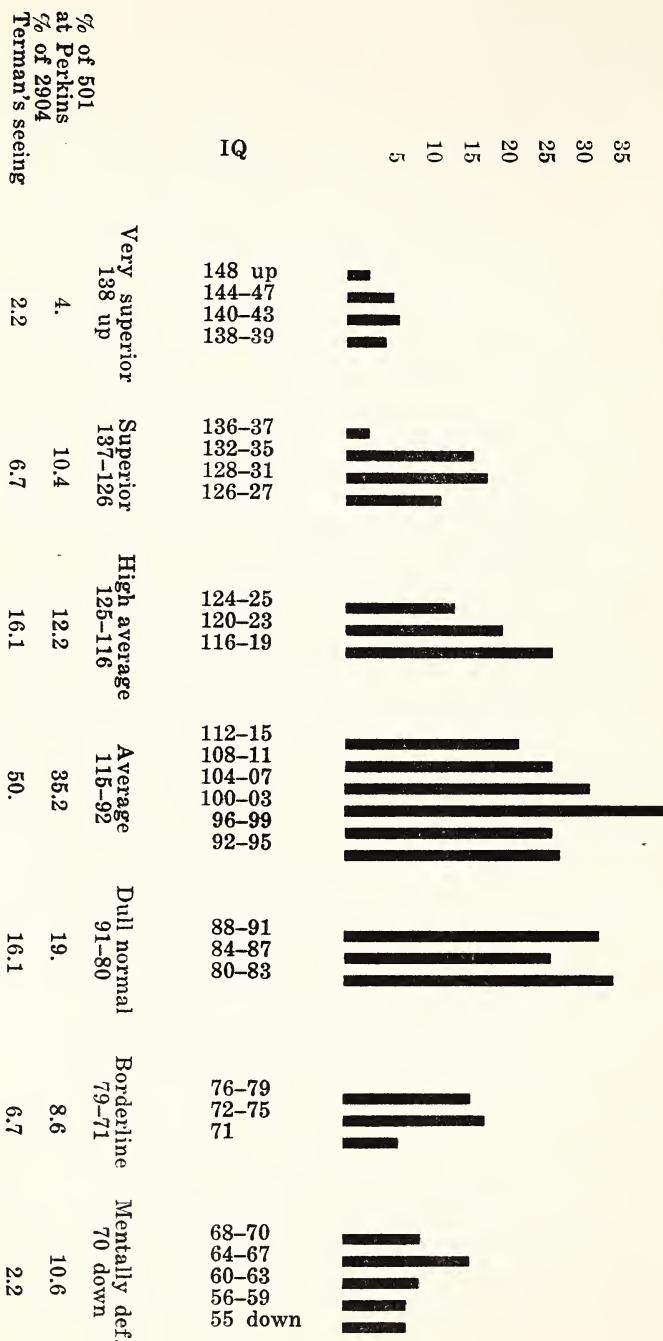


Table B

First tests of all Perkins pupils (350) September, 1940 to January, 1950 inclusive with the Wechsler-Bellevue Adult Intelligence Test Form I. Mean IQ 102 SD 16.61

IQ Range	Percentage of Students at Perkins
140 up	~1.5%
136-39	~2.5%
132-35	~3.5%
128-31	~4.5%
124-27	~10.5%
120-23	~12.5%
116-19	~15.5%
112-15	~18.5%
110-11	~20.5%
106-09	~35.0%
102-05	~30.0%
98-01	~28.0%
94-97	~25.0%
90-93	~22.0%
86-89	~15.0%
82-85	~12.0%
80-81	~10.0%
76-79	~8.0%
72-75	~6.0%
68-71	~4.0%
66-67	~3.0%
62-65	~2.0%
58-61	~1.5%
57 down	~1.0%

treatment of a child, and his present emotional and social adjustment. Many young children seeking admission are already "problems," retarded in physical, social and intellectual development through unwise parental training. They may not walk or dress themselves because they have not been motivated to do so; they may not enter group play because they have had no former opportunity; they may not talk because they have got what they wanted by grunts and unintelligible sounds; they may be behind their age in any of these activities because love and affection, which are fundamental to the development of a sense of security, have not been given to them. Of course little children cannot be tested with a verbal scale like the Binet until they have developed facility with language, but an observational scale like the Maxfield-Fjeld adaptation of the Vineland Social Maturity Scale gives some help, and for most of the children who are admitted to Perkins a tentative MA and IQ can be obtained during the first half-year, which may be used in connection with the observations of teachers and house mothers to determine a child's probable educability. All through the school years, the results of intelligence and achievement tests are taken into account in discussions of pupils in teachers' meetings and in the monthly meetings of the Personnel Department. Where personal or social problems cannot be resolved through the pooling of information from social worker, psychometrist, teachers, nurse, and speech therapist, a psychiatrist is appealed to for advice. Many situations, which in the traditional school would seem to require only severe discipline, are resolved by a careful review of the whole picture of a pupil, considering not merely *what* he has done, but *why* he was led to do it, and how his attitudes and his environment may be changed to make unlikely a repetition of his offense. But since social educability requires at least a minimum of intelligence, and certain types of motivation cannot be used with pupils of low understanding, test results may be decisive in determining whether a pupil, who has been a social or an educational problem, has remained at Perkins as long as he is likely to profit by our program. In the admission, retention and dismissal of pupils we must always take their MA and IQ into account.

Miss Edith Newlin, Psychologist at the Overbrook School for the Blind, discussed the use of test results in the educational

guidance of pupils in the lower grades. She reported a similar dependence upon test results in Overbrook, where resident psychometrists have been employed continuously since 1916, with an accumulation of data, which has been generously supplied all through the years for the comparative studies upon which Dr. Hayes has based his published recommendations of tests adapted for use with the blind. She raised the question whether teachers who are new to the work of teaching blind children could be expected to use IQ and MA figures wisely, especially since these figures often change greatly after a child has been in school for a time. This is frequently the case if a child has been restricted in his learning experience at home and so is ignorant of the most common things which we expect a child with sight to know. The Overbrook policy has been to report the abilities of a pupil only in general terms; such as, "This child tests about at average," "This is a capable child from whom excellent school work should be expected," "This child tests below average now, so we must be patient and see what progress he makes in school." Discussion brought out the fact that a similar method was used for many years at Perkins, but that now through discussions in the Harvard-Perkins Teacher-Training course, which most of the teachers have attended, and reminders in teachers' meetings, a professional attitude has been developed which justifies the Perkins practice of giving full information to the teachers, offering not only the last IQ and MA, but earlier ones, of which there are often quite a number which show whether a pupil's mental ability tends to be constant at the same level, or to rise or fall, along with all other available data concerning home background and present relationships, school achievement as indicated by tests and school grades, social adjustment in the cottage family, etc.

Miss Newlin reported that frequently fourth grade (and recently enrolled) pupils are not ready to take group achievement tests in braille. She welcomed the recent increase in the use of the oral method of testing, provided in the Metropolitan Achievement tests and now recommended for many of the tests in the Stanford Achievement series (which, by the way, were embossed in grade 1½ braille and are not yet available in grade 2 braille). By the sixth grade she felt quite sure that group achievement tests give reliable indications of progress in the

school subjects, with all but exceptional cases. The results of recent tests indicate, moreover, that the wider use of the Talking Book fills the need for supplementary reading in literature and history, especially with the sight-conservation group. Overbrook also makes an annual use of achievement tests at the High School level; such as, the Sones-Harry and the Myers Ruch, with helpful results.

Miss Newlin stated that improvements in the curriculum, or in teaching methods, might well result from a wise use of the results of achievement tests. If several grades test low, or certain subjects are below standard, while others are very high, a study of the abilities of the pupils and the material covered might indicate the need for a change in emphasis in subject matter or for a modification in methods of instruction.

Miss Newlin called attention to the considerable number of bright children now in schools for the blind, as indicated by high IQ's and superior school achievement. She raised the question whether our attention should not be turned from consideration of the retarded pupils, whose education has been a major problem, to the superior blind pupils who find their school work too easy for them and, because they are bored, develop indifferent methods of study and find their excitement in becoming trouble-makers. Public and private schools and colleges throughout the country are becoming aware of their long neglect of talented pupils and are beginning to do something for them. So many hobbies and research projects are closed to the blind that we should seriously canvass the possibilities, and by a comparison of experiences attempt to list worthwhile activities and projects which are feasible for pupils without vision.

Miss Newlin called attention to the general educational principle, emphasized in schools for the seeing, that activities required of the young child should be such as would involve the use of his large muscles, postponing until later the demand for fine muscular co-ordination. Large pencils and widely-lined paper are used in manuscript writing, with the emphasis upon whole arm movements, in teaching small children, and not until the third grade is the transition made to writing which requires small hand movements. But no pencil writing causes the strain which a young blind child shows when learning to use the stylus.

The braille writer, however, involves the use of larger muscles, and also obviates the confusion of writing from right to left, when reading must be done from left to right. For these reasons, Miss Newlin strongly urged the use of the braille writer with younger blind children.

Miss Newlin made a plea for the left-handed child. In no case should such a child be forced to use the stylus with his right hand. If he happens to be ambidextrous he may become confused in his mind and find stylus writing very difficult. He may transpose letters and figures so that his product in arithmetic and spelling will be badly jumbled, even though he may have a superior mind and be very efficient in oral work. If totally blind, he may also have great difficulty in finding his way alone, even in his class room. Such children need infinite patience and understanding.

II. SYMPOSIUM ON ACHIEVEMENT TESTS

The Friday evening session was devoted to a discussion of achievement tests. *Dr. Hayes* introduced the subject with a report on "The Head-aches of a Test-maker." While it is very desirable that teachers should make a considerable use of standardized tests, it is essential that they follow directions to the letter, or their results cannot be compared with published norms. And if they themselves wish to attempt the adaptation of seeing tests for use with the blind, they should first study the literature, lest they become trapped by the numerous pitfalls in their path. Making over a test for use with blind pupils is much more of a process than merely omitting illustrations and then putting the balance of an ink-print test into braille. There are various self-checking devices provided for the seeing, which cannot be used by blind pupils, for they must first read the text in a braille pamphlet and then record their responses on a braille slate, instead of checking a work or writing a number on the ink-print test itself as the seeing may do. Matching tests, very popular with the seeing, in which each item in one long column is matched with an item in another, are quite unsuitable for testing the blind; they cannot glance up and down both columns to make their choices, but must memorize one column (and perhaps, both). They also find it very awkward to move back and forth

from reading the braille pamphlet to writing on their braille slates. This makes the test slow, and there is always a question whether we are really measuring the subject knowledge of the pupil or merely such factors as his braille reading ability, his manual efficiency in handling the materials, or perhaps his rote memory.

So it has been our custom to transform matching tests into a more suitable test pattern; such as, the "best answer" form, a device which was used with the Sones-Harry High School Achievement test. Another solution of the difficulty, is to print one column of items in braille and have the tester first read this column with the students to be sure all words are properly perceived; after this the tester reads one item at a time from the other column, and allows time for the pupils to write their choices. Sometimes part of the content of a seeing test has to be omitted; such as, the diagrams, charts and maps often used in tests of mathematics, geography and history, since the more complicated patterns are unreasonably difficult to understand through touch, even when they are greatly enlarged (as has been repeatedly tried). And again we are probably measuring something else rather than the pupil's knowledge of subject content—in this case his efficiency in touch discrimination. In tests of arithmetic computation, which are printed for solution by the use of pencil and paper, only the simpler processes are suitable for solution by "mental arithmetic" and the later items are generally beyond the powers of even those pupils who know all the mathematical short-cuts practiced by the blind. So we recommend that schools be contented with tests of arithmetic reasoning, and omit the standard tests of arithmetic computation, until tests suitable for the blind have been constructed.

As illustrations of "Headaches," Dr. Hayes cited cases in which the use of faulty techniques in testing the blind had given results which could not be compared with seeing norms, or had mislead the users into untenable conclusions. In one case a tester who should have been familiar with the test literature had to discard a considerable number of test papers because the pupils revolted when asked to answer intimate personal questions by writing Y or N on their braille slates, for they soon realized that one pupil could tell how another was answering by simply counting the clicks made in writing these braille

letters—five clicks for Y and four for N! Yet this difficulty had been pointed out in several published articles, with the suggestion that testers use letters giving the same number of clicks; such as, S for a Yes response and O for a No response (three clicks for each letter), or C for Correct and I for Incorrect (two clicks for each letter). In another study, involving an extended survey of braille reading, a still graver error was committed. In spite of the well-advertised fact that blind school children read only about one-third as fast as seeing children in the same grades, and must therefore be allowed about three times as long to cover the same amount of test material, in this use of the Monroe Standardized Silent Reading Tests, only 6 minutes were allowed blind children in Parts I and II (in which the seeing are allowed 4 minutes) and only 8 minutes in the much more difficult Part III (in which the seeing are allowed 5 minutes). According to our practice, the blind children should have been allowed 10–12 minutes for Parts I and II and 13–15 minutes for Part III (recent research having indicated that blind pupils do about as well with $2\frac{1}{2}$ as with 3 times the seeing time allowance). As most achievement tests are arranged with the simpler material at the beginning, the pupils involved in this survey were tested only on the *easier* material. This mistake would not be so serious if the author had sought merely comparative data between schools; but of course no comparisons with the *seeing* norms were justified. When the author, however, interpreted his results as indicating a *superiority* of the blind to the seeing in *comprehension*, a grave error resulted, for they were not tested at all on the more difficult passages which were designed especially for testing comprehension. Another tester using the same test material fell into the same error of timing and sent to the Outlook for the Blind an elaborate statistical study based on wholly unreliable basic data, which was fortunately refused publication. And a study made at Perkins on the same test using the *proper* timing—had been published in the *Teachers Forum* nine years before the first study mentioned above!

Other cases might be cited, where clumsy arrangement of test material has made a test unduly difficult for blind pupils, and vitiated comparisons with seeing norms. If changes are made from the seeing procedure, as in the increasing use of the oral method of testing, to reduce the handicap of inefficiency

in braille reading, new norms for the blind must be developed on the basis of a comparative study of results in several schools. In the adaptation of the Metropolitan Achievement Tests, for instance, instead of giving braille material with an increased time-limit, the tester reads each question and its four or five alternative answers, from the beginning to the end of the ink-print test, there being no obvious place to stop. This gives the pupils a chance at items in the latter part of the test which even the fastest and brightest pupils might not reach when limited by a time allowance. In some tests though not in all, this has resulted in considerably higher scores than the norms for the seeing, so new norms for the blind, when tested by the oral method, are being established.

It seems highly desirable that teachers should make a considerable use of standardized tests for their own satisfaction, but they should be familiar with, and carefully observe, the precautions printed in the test literature, which has been prepared in order to save them from the common pitfalls. Printed tests are sometimes advertised as "fool-proof," but experience indicates that this is mainly sales-propaganda. The human element is too often unpredictable!

Strong confirmation of the value of tests in educational and vocational guidance came from the paper presented by *Mr. Orin A. Stone*, Principal of the Perkins Upper School. Seven areas were listed in which the results of tests give valuable assistance, when used along with all other available data.

1. For the information of teachers.

Perkins believes that an understanding of the whole child is the best basis for his education. To this end the teachers are urged to consult the social worker to learn about a child's home background and former school experience, and to interpret his IQ and MA in this larger setting, with the understanding that under a favorable environment an unsatisfactory mental and personal-social picture may well change for the better. As the results of achievement tests are reported, in class tables and in curves showing class and individual profiles, it is possible to study each child in comparison with his class, with seeing norms, and with former annual tests, to note which subjects are easiest

and which are hardest, and how nearly his subject achievement corresponds to his native ability. If intelligence tests indicate low native ability the teacher must be content with modest school progress; if she has been informed of an unhappy home background, or a present emotional disturbance, she may be forced to use great patience and ingenuity in order to keep the wandering attention of a child directed upon his school work; if a child of superior native ability is doing poor work in his school subjects, additional motivation is needed—perhaps through widening or enriching his course of study.

2. The pupil in trouble, academic or social, may be treated after the manner of the clinic. With all the data available, misdemeanors may be treated in terms of their causes, with cure rather than punishment as the aim. A girl who does well in some subjects, fails in others, not because she does not try, but because she has never attained adequate proficiency in braille; a boy who tests high in intelligence does indifferent work in school because he is constantly worrying about his rapidly fading vision, due to a cause for which he blames his parents; a girl, apparently in protest to too much personal restraint, disturbs housemothers and teachers by loud and boisterous behavior in cottage and school room.

3. More realistic school grades may be reported to the principal as a result of testing. Although teachers are cautioned against allowing their personal likes and dislikes to color their reports, it is only human to "give a break" to a pupil of pleasing personality who tries very hard; and it is difficult to give full credit in school work to a pupil who has constantly annoyed a teacher by his misbehavior. Standard tests help the teacher to mark their pupils objectively rather than subjectively. And, incidentally, standard test results are of great value in dealing with parents, whose prejudice in favor of their children sometimes leads them to think the teacher or the school unfair, or mistaken, in their judgments.

4. Objective tests help in the proper placement of pupils. When a child comes to a school for the blind, by transfer from a school for the seeing, with a record of passing the seventh grade, for instance, we may find that he has been passed along from year to year, completing only certain subjects, or parts of subjects; that he has been excused from many tasks because

of his poor vision and cannot be expected to do eighth grade work if he is shaky on the fundamental processes underlying it; that he has never developed adequate methods of independent study. If our intelligence tests show that he has excellent native mental ability, he may be brought up to grade level by tutoring, and as soon as he has mastered braille he may do acceptable work in our eighth grade, and later show this in an achievement test. If he tests average or low in intelligence, it may be best to place him in the seventh grade, or even lower, though one must always consider the emotional effect of demotion, both on the pupil, and on his parents and their attitudes toward him and the school. When a pupil already in school is asked to repeat a grade—because of absences due to illness or any other cause—the testimony of standard tests serves as convincing objective evidence both in gaining the acceptance of this action by the pupil, and in explaining it to his parents. With the rich store of information about pupils, the Personnel Department at Perkins seeks all possible causes of failure, and their correction where possible, hoping to promote pupils regularly whenever possible and avoid the painful stigma of failure. In fact, promotions at mid-year, or complete omission of a grade, have sometimes been made on the basis of intelligence and achievement tests which have shown that a pupil is so much ahead of his group that he has no healthy competition, and may become a social problem from boredom or undirected energy.

5. Objective tests are of fundamental importance in the division of classes into rapid and slow divisions. If one boy in the eighth grade tests only at the level of the sixth in most of the nine subjects measured by the achievement tests, while another tests at the tenth grade level, neither one belongs with the rest of the group. If those having similar high level of ability and attainment can be treated as one group, and those rating low in both can be educated together as a second group, both groups will be happier and more successful than when taught together. While competition should not be the prime force for motivation, it is often a healthy stimulus among pupils who are approximately equal. It is most unwholesome when some always win and others always lose—unwholesome both for the winners and the losers. An equitable division works best for both groups.

6. Educational guidance at entrance to the high school—which of several courses to pursue at Perkins—and vocational guidance into the world of work after finishing at Perkins, both depend upon test data as an integral part of the whole program, with the addition of interest inventories and motor skill tests to those mentioned before. Pupils who have had difficulty with academic work in the Lower School (easily explained by their low intelligence ratings), may be allowed to work for a Manual Training Certificate, spending most of their time in shop work and auditing two academic courses per year, without taking the examinations. Pupils of average ability and fair success may add to the core curriculum of general studies, a wide variety of *Fine Arts* and *Practical Arts* subjects yielding a high school diploma, pursuing their study either at an A or a B level. Pupils of superior ability, as shown by high IQ's in intelligence tests and high scores in achievement tests, may be advised to take the college preparatory course; and if they do well in their subjects, attain a score of 550 or above in the Scholastic Aptitude Test, and have the personality qualities and financial backing necessary, may be certified for entrance into a college.

7. State Boards and adult agencies may be furnished with a cumulative record of results in standard tests, along with school records, comparable to that provided for seeing pupils.

In the discussion following Mr. Guy Marchisio, of the N. J. Commission, reported upon their use of a Vocational Kit, published by the Science Research Associates, containing seventy folders of job descriptions, which are valuable in courses in vocational guidance in the high school, and in the counselling of blind adults.

In compliance with a request from Miss Marjorie Hooper of the American Printing House for the Blind, *Mr. Waterhouse* presented two problems upon which the opinion of the group was desired. 1) Since most of the standard tests now in braille were embossed in grade 1½, the Printing House wished advice on the selection of tests to be printed in grade 2. As many of the tests listed were not familiar to the Conference members, it was suggested that unnecessary expense might be avoided by moving cautiously; and that the demand for particular tests as indicated by the past orders on the books of the Printing

House might be made the basis of selection of those most likely to be needed in grade 2. With the frequent appearance of new tests, as for instance the series of forms of the Metropolitan Achievement Tests, it might be wise to emboss new tests in grade 2 only. 2) The list of principles of action followed by the Printing House in embossing test material—a) Begin each test on a new braille page, b) Do not divide words at the end of lines, etc.—was read and comments requested. In general there was approval of present practice, and no constructive criticisms were offered.

III. SYMPOSIUM ON APTITUDE, INTEREST AND PERSONALITY MEASUREMENTS

The Saturday morning session began with a fascinating demonstration of motor skills tests, by *Mrs. Mary K. Bauman*, from the Personnel Research Center in Philadelphia. Called upon during World War II to determine the vocational potentialities of blind adults, she had modified Ziegler's Minnesota Rate of Manipulation Test and the Pennsylvania Bi-Manual Work-sample constructed by her colleague, Dr. J. R. Roberts, tried them out with the older pupils at Overbrook and blind adults already employed in the area, and established norms for the employability of the blind in occupations involving the fundamental manual skills measured by these tests. By giving blind subjects a longer period of practice, experimentally determined, scores within one standard deviation of the seeing norms can be considered as indicating the probability of successful competition with employed seeing workers. Besides the numerical scores, the behavior of the subject gives clues to rapidity of orientation in the work-space, and personality qualities like nervousness, persistence and willingness to accept simple repetitive work. Next Mrs. Bauman demonstrated the operation of her non-language learning test with two Perkins pupils as subjects, and interpreted their behavior. As her third contribution Mrs. Bauman discussed her "Emotional Factors Inventory," the first personality questionnaire designed especially for blind adults, and composed of items gathered by rehabilitation workers familiar with the personality qualities and difficulties of their blind clients. A table of results was presented showing the differences in scores for three groups of blind subjects in seven

personality areas. Group A included 122 blind clients successfully employed on a competitive basis for at least a year, and well adjusted in personal and social life; Group B included 116 blind clients having no successful employment within the last several years, or since loss of vision, but otherwise apparently reasonably well adjusted; Group C included sixty-four blind clients with no successful employment, and generally maladjusted in personal and social life. The personality areas tapped by the test items were described as follows:

1. Sensitivity. This includes the type of item common to personality inventories under the heading of neurotic tendencies, emotional instability, irritability, moodiness, etc.
2. Somatic symptoms. This includes simple health items, often regarded as possibly psychic in origin; such as, fatigue without apparent cause, headaches, allergies, the pounding heart, fainting, fear of drafts, etc.
3. Social competency and interest in social contacts. Included here are items bearing upon the attitudes of the individual in social situations, and upon his willingness to seek social contacts as opposed to withdrawing from groups.
4. Paranoid tendencies. This category seeks to uncover attitudes of self-magnification and their frequently accompanying attitudes of suspicion and distrust towards others, the notion that the individual is persecuted, has been treated unfairly, etc.
5. Feelings of inadequacy. Items in this category were especially designed to disclose a feeling of inferiority or inability to meet competition, traits which are supposed to characterize one typical reaction to a physical handicap.
6. Depression, a measure of the hopelessness, the lack of morale, the feeling that the individual would be better off dead, which is also supposed to characterize certain types of reaction to physical defect.
7. Attitudes toward blindness. This group of items specifically measures the individual's feeling about blindness in general, about himself as a blind person, and about the way in which his family and community should react to him as a blind person.

8. Finally, validity items were included to attempt to measure the individual's understanding of the inventory content and his frankness in responding to it.

In all seven areas there was an increase in score from the A to the B group, and from the B to the C group, while all three groups scored about the same on the validation scale. And in areas 3 through 7, the differences between the scores of groups A and B are highly significant, indicating that such a test would be quite valuable in counselling blind clients.

The next paper was a report of the use of two personality questionnaires with high school pupils, presented by *Miss Geraldine Scholl*, Elementary Supervisor in the Michigan School for the Blind. "We felt that the administering of personality tests to our Junior and Senior students was an important part of our program, so we sought a method of giving the tests which would be as easy and painless for the subjects, as possible. We hit upon the tape-recorder technique, which Mrs. Bauman has just described. This avoids the frustrations of slow braille reading, and encourages the pupils to answer questions honestly and without the inhibitions which might arise if tested in the presence of another person." Before taking a test the subject is carefully instructed in the operation of the machine, with practice in turning it on and off, and given a chance to examine the mechanism. This satisfies his curiosity and avoids the danger of playing with the machine later when he should be taking the test! He is informed that the tester will remain until he has heard, and feels he understands, the instructions given on the tape, after which the tester will quietly leave the room; but that if he has difficulty of any kind, he is to stop the machine and call the tester back. For the Bernreuter Personality Inventory he will hear the following instructions:

"The questions in this survey are intended to indicate your interests and attitudes. It is not an intelligence test, nor are there any right or wrong answers. In front of you, you will find three boxes: the left box is marked 'yes,' the middle box is marked 'no,' and the right box is marked '?.' You have been given a stack of cards numbered in braille and in print from 1-125. All of these cards have the upper left corner cut off. These cards correspond to the 125 questions you will hear.

As each question is read to you, decide whether your answer is 'yes,' 'no,' or '??' (that is, you are not able to answer either 'yes' or 'no'). Place each card in the box to correspond with your choice." Then the subject will hear the questions in order, with a five second interval between each two, a period which has been found ample for the pupil to answer a question. After question 25 he will hear: "Next you should find a stiff piece of cardboard. If you do not, please stop the machine and call the tester. Please put this cardboard into the box marked 'no.'" Similar check cards will be found after questions 50, 75 and 100. This use of check cards enables the tester to determine whether the pupil is oriented correctly with reference to the position of the three boxes and whether he has used the correct box for his answers. If he has made a mistake, he can begin again at any interval, and not be obliged to repeat the whole test. It also gives the pupil a short pause after each 25 questions.

Miss Scholl reported that high school pupils readily adjust themselves to the technique, seldom make mistakes, and seem to get great satisfaction from this testing procedure. A simple method of scoring has been devised, so that it is possible to administer the test, score it and sort the cards in the right order for another test within one forty-five minute class period. While the pupil is taking the test, the tester is free to carry on other activities in another room. The same technique has been successfully used in Michigan with the Bell Adjustment Inventory, and may be recommended for other tests of the questionnaire type. Mrs. Bauman reported the successful use of the Kuder Preference Record by this method, which is further discussed under "Tests and testing techniques," pp. 25-27, in the Bauman and Hayes, Manual for the Psychological Examination of the Adult Blind, 1951.

Dr. Hayes had planned to give a report on the use of interest inventories at Perkins, but so much of the morning had been already profitably spent, that he merely passed out copies of the *Outlook* for April, 1948, in which he had discussed the technique and results of giving the Kuder Preference Record to older pupils with large dot sheets, and referred to his article in the *Outlook* for March, 1951, for an account of the value of the Ohio Interest Inventory for educational guidance in the intermediate

grades. This left time before lunch for the last speaker of the morning.

This Conference had first been planned with the particular needs of the schools in mind, but when *Dr. Regis F. Ferson*, Psychologist and Vocational Counselor at the W. Pa. School for the Blind, suggested that our program might well be extended to the field of vocational guidance, which is of vital importance both for pupils leaving school and for the adult blind population, we were delighted to include this topic in our program. "Many sighted youngsters learn about the world of work in the course of their daily living, while the blind child is deprived of most of this incidental learning. And without knowledge of the alternatives available, the wise choice of an occupational objective is impossible. For this reason, occupational information, one aspect of vocational counseling, is especially important in the guidance of the blind pupil." Dr. Ferson reviewed the types of data needed for scientific counseling, including various types of tests and social information, listed the techniques used, and made copious reference to the literature in which the importance of tests is emphasized, citing studies in which minimum requirements for various occupations have been established. He recommended that the three volumes of the Dictionary of Occupational Titles, published by the U. S. Government Printing Office be put into braille at the American Printing House, for use in high school classes in guidance, and that these volumes in print or in braille be part of the library equipment of every vocational counsellor dealing with blind clients. These volumes provide not only descriptions of some 17,000 jobs; such as, that of broom-maker (Volume I), a numerical arrangement for coding and indexing the literature on these jobs (Volume II) but also a classification of these jobs into families of occupations each of which requires a particular pattern of characteristics in the individual who enters it (Volume III). The value of this latter feature is suggested by the fact that some twenty-eight jobs, in a wide variety of industries, are indicated as closely related to the job of brush-maker, a traditional occupation for the blind. With such aids, blind psychologists having the proper training might become successful counsellors—just as blind social workers become successful home teachers—though the actual testing should be performed only by fully sighted persons. In line with this

point of view the following note was included in the Bauman and Hayes, Manual, cited above, page 6. "It is recommended that blind and deaf persons do not undertake the testing of clients for permanent record, since the behavior of subjects may give indications of attitudes and adjustment which are very important for the interpretation of the numerical results of tests."

Saturday afternoon was left free for relaxation and excursions around historic Boston. After supper Mr. and Mrs. Waterhouse entertained the delegates at the Director's Residence until the opening of the last session at 8 P. M.

IV. THE SCHOLASTIC APTITUDE TESTS FOR APPLICANTS TO COLLEGE, AND ESTIMATES OF THE MENTAL DEVELOPMENT OF PRESCHOOL BLIND CHILDREN

Miss Josephine L. Taylor, from the N. J. Commission for the Blind, reported upon the use of the Scholastic Aptitude Tests, which had been adapted for use with the blind by printing the first three parts in braille, and putting the fourth part on a talking book record, at the instigation of the N. J. Commission and the American Foundation for the Blind. With a limited budget, the Commission felt the need of the widest possible basis for judgment, to assure that the most promising pupils should have the chance at college scholarships. The test consists of four braille booklets and two Talking Book records:

- a) a practice booklet in braille containing samples of the three types of tests to be given in the regular test sessions, which is passed out before the day of testing to familiarize the pupils with the types of tests to be used;
- b) a booklet in braille containing 100 items of the Opposites Test;
- c) a booklet in braille containing 50 items of the Analogies Test;
- d) a booklet in braille containing 50 items of the Paragraph Test;
- e) two records containing 50 paragraphs to be read to the candidate by means of the Talking Book. This is an alternate form of the Paragraph Test given in braille.

Miss Taylor gave an optimistic report on the predictive value of these tests, reporting upon the later careers of pupils

who tested at different levels. The average score for the seeing is 500: 550 is considered very good, and 450 is rated as passing. Miss Taylor reported a small number testing at 600 or above, all now doing superior work in college, or already in professional life as lawyers, teachers or in radio work. Of seventeen testing 550 or above, thirteen entered college and all but two did above average work there. Of the fourteen testing from 500-550, all were above average as college students; two have taken MAs in Social Work and two in Business Administration. Of those testing from 450-500, eleven entered college, and several took graduate work. Of those testing below 450, seven went to college in spite of advice: three are now in college, of whom one is doing average and two are doing poor work; one with a high IQ and great persistence has graduated, one took an extra term, and two others, though slow, are now doing graduate work. In general the degree of success pretty well parallels the level of score in the Scholastic Aptitude test, though of course native intelligence, "drive," and other personality qualities, social background and former school records all help to determine the pattern of success.

Miss Taylor reported that the test materials, which have been in constant use since 1938, are now in most unsatisfactory condition, and Miss Newlin reported that she had already returned test pamphlets which she marked "unfit to use." The question was raised whether the Board might be requested to prepare a new edition using some recording method for the whole test, instead of reprinting in Braille, since high school pupils get so much of their education through the help of readers that their braille reading ability may suffer; and a series of propositions was voted for inclusion in the recommendations of the Conference, printed below.

Mrs. Harriet Hyde Sands, Assistant Psychologist at the Children's Medical Center, Boston, and Psychologist at the Boston Nursery for Blind Babies, explained the difficulties met in any attempt to estimate the mental development of blind babies in such an interesting and sympathetic manner, that the Conference voted that her paper be printed in full, and we are happy to include it in this report.

The Psychological Appraisal of Young Blind Children

HARRIET HYDE SANDS, ED. M.

The measurement of mental development in young blind children is subject to considerable controversy. The exclusive use of the standardized tests for normal children obviously encounters insurmountable difficulties since these methods all presuppose vision as well as visual experience. The psychologist who is used to depending on these methods alone is at a loss and is unable to interpret her findings accurately. Therefore, it has been said frequently that it is impossible to evaluate the mental development of blind children, as well as those with other handicaps, such as for instance the cerebral palsied. Still the experienced child psychologist has other methods at her disposal. Those who are accustomed to observe and to interpret the behavior and reactions of both normal and handicapped children are able to recognize differences in performance and in ability that are closely related to intellectual functioning.

The need for a psychological appraisal of blind children is often felt by parents, physicians and teachers. The psychologist who attempts such an appraisal needs to be given a good deal of background information. A complete history of the child's physical, mental, social and emotional development is part of a complete psychological evaluation. This history must include information about the child's opportunities for development, the attitudes of his family, the home conditions, and the child's reactions to them. All these environmental and emotional factors have to enter into the picture and contribute to the study of the child. Thus the psychological appraisal becomes an individual case study.

While the use of a standardized test-situation is limited in the work with blind pre-school children, various items from the well known pre-school tests can be put to use. The Gesell Developmental Scale, the Merrill-Palmer Pre-School Scale, as well as the Stanford-Binet Scale, contain adaptable sub-tests. Most useful as a frame of reference are the Interim Hayes-Binet Test

for the Blind, and the Maxfield-Fjeld Adaptation of the Vineland Social Maturity Scale for use with visually handicapped pre-school children. In addition it is of particular interest to make careful qualitative observations of the child's spontaneous play activities, his awareness and alertness; his methods of discrimination, exploration and localization; his means of communication and use of language; his attention span and learning ability; his reactions to routine, and to people he knows as well as to new people. These observations help to create a picture of the child's potentialities which the test procedures alone cannot always reveal.

Very young physically handicapped children can seldom be given an accurate intelligence quotient or an "I.Q." rating, although at times a numerical rating may seem necessary for statistical or administrative purposes. Such a rating should be recognized as a test score at his present age and not as a permanent label of a child's intellectual capacity, for too many elements enter into this type of rating to give it predictive value. Evaluating a child according to his functioning level in various areas is a much more helpful concept. Specific abilities may vary widely; for example, two five-year-old children may each have the same I.Q. rating of 100. The child who obtains this rating by solving all the tests exactly at a 5-year-old level, is quite different from the one whose responses range from a 3-7-year-old level. Many children may function poorly in a test situation, but show adequate ability when observed and evaluated with other techniques; often a child may be emotionally blocked or disturbed in his functioning so that a statement of his potentialities must be deferred.

It seems preferable then to give a descriptive report of each child's behavior as observed, recording his chronological age and a reference to the developmental levels at which he responds in different areas; such as, language, motor skill, perception, comprehension, reasoning, learning ability, personal-social relationships, and so forth. These levels serve as a base line for future evaluations and help those working with the child to know the quality of his functioning, and his particular abilities and needs.

Dr. Hayes presented a series of tables and curves which supplemented and supported the position taken by Mrs. Sands.

For babies too young, or without enough language development for a Binet test, he recommended the use of the Maxfield-Fjeld Tentative Adaptation of the Vineland Social Maturity Scale, and reported upon the current study looking toward its ultimate standardization. a) "Progress Curves" formed by charting the scores obtained by the observation of a large number of blind babies, show a fairly regular upward trend for individuals and groups, with the curve of median attainment fairly close to the yearly progress expected. While most individual curves cluster about the median curve, a fair number of children rated high from the earliest to the latest observation, and a considerable number remained at a low level throughout. b) A distribution of 528 "Social Quotients" (see Table C below) yielded by the scale, takes very nearly the normal bell-shaped form (which is expected of any adequate measurement) though showing an overloading at the lower end, as one would expect from the frequent reports of blind babies who have not developed because of unwise parental restriction of behavior, over-solicitude, or the emotional blocking resulting from parental rejection or lack of affectionate care. This table also furnishes a ready refutation of the early claim that babies blinded from retrorental fibroplasia are likely to be mentally retarded. c) A comparison of 145 RL babies with 155 blind from other causes, shows almost identical distributions: there are just about as many superior RL babies as there are non-RL babies; there are about the same number who rate as average; and there is the same accumulation of cases at the lower end of the scale.

Further evidence on RL babies was presented (see Table D below) giving the IQ's of all children of CA 2:6 to 7:11 so far tested with the Interim Hayes-Binet Intelligence Tests and reported to Perkins, by various agencies. Here again we find the distribution of IQ's for sixty-five RL babies, taking practically the same normal form as the distribution of IQ's for 141 non-RL babies, with practically equal percents of cases in the superior, high average and average groups; but much smaller percents of cases appear in the borderline and mentally defective groups, for the RL babies. In the borderline group we find 7.7% of RL babies, as contrasted to 12% of non-RL babies; in the mentally defective group we find 7% of RL babies to 12.8% of non-RL babies. When the RL pupils now in Perkins are compared with

Table C

Distribution of 328 Social Quotients obtained by the use of the Maxfield-Fjeld
adaptation of the Vineland Social Maturity Scale

First observation of each baby

145 retrorenal
fibroplasia babies

SQ

150 up
146-49
142-45
138-41
134-37
130-33

155 other
babies

All observations (528)

First obser. 300 babies; second 182;
third 54; fourth 26; fifth + 16 babies.

126-29
122-25
118-21
114-17
110-13
106-09

102-05
98-01
94-97
90-93
86-89
82-85

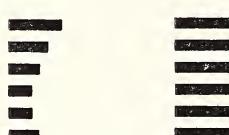
78-81

74-77
70-73
66-69
62-65
58-61

54-57
50-53
46-49
42-45
41 down



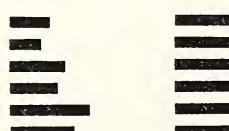
SD + 1 107



Mean 81



SD - 1 54



Mean

77.42

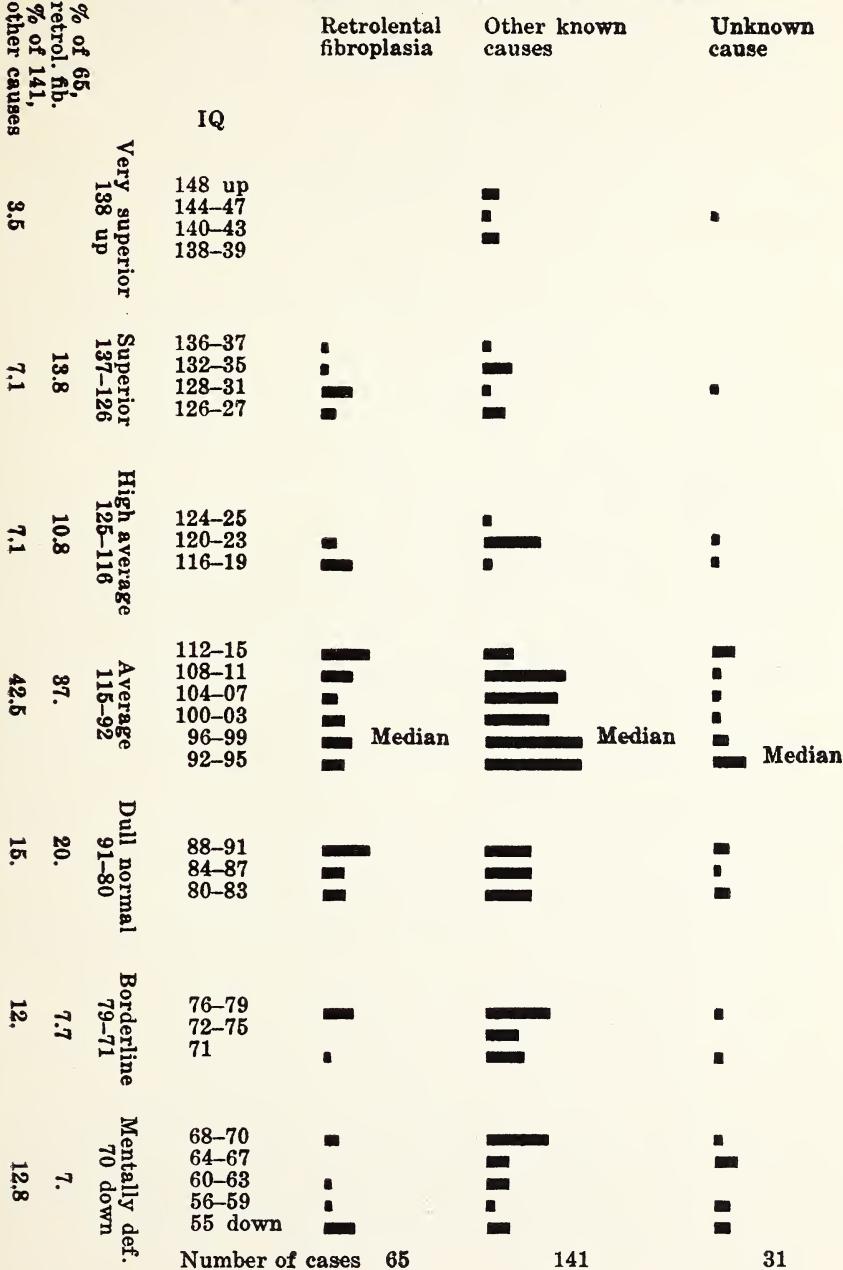
80.86

80.77

SD 26.41

Table D

**Distribution of IQs obtained with young blind children—ages 2:6 to 7:11—
using the Interim Hayes-Binet Intelligence Tests for the Blind**



the non-RL pupils a similar superiority is found. There are larger percents of RL pupils in the higher IQ levels, and smaller percents in the lower IQ levels than is the case with the non-RL pupils. So far as the evidence has been collected, it would seem that RL babies are superior mentally, rather than inferior, as had been feared.

The Committee on Recommendations then presented its report, which was revised and improved by group discussion, and will be sent to all schools and many agencies for the blind in the following form:

Recommendations of the First Regional Conference on Mental Measurements of the Blind, meeting at Perkins Institution Oct. 26-28, 1951.

Efficient class room education depends upon our recognizing, and taking advantage of, individual differences. Children grow at different rates, mentally and physically. Some are endowed with special aptitudes—in language, music, number sense, muscular co-ordination—while others have less than average native ability in these and in other lines. The happy, successful child is the one who has a *chance* to do what he is *able* to do, when he has *matured* enough to attempt it.

The mental and physical measurement of children gives teachers and superintendents a scientific basis for educational guidance and curriculum planning. Just as an undernourished child (discovered through physical examination) must have a special diet, and a cardiac case or a child in danger of retinal detachment, must be limited in his physical activities, so a child who is maturing at a slow rate mentally must be given simpler work which he can do without strain, and a child with great curiosity and an eager, alert mind must have a proportionately wider opportunity for action in order to gain mental satisfaction.

This Conference believes that provision for the mental measurement of blind children of all ages should be as adequate as for their physical, dental and eye examination, and therefore recommends:

1. That schools and agencies secure the services of trained mental testers on a full or part time basis;
2. That the findings be made available for use of persons of professional training, in the following seven important areas:
 - a. Information for the guidance of teachers,
 - b. Clues for the interpretation of pupil difficulties, academic or emotional,
 - c. Objectivity in subject grades handed in to the principal,
 - d. Help in the grade placement of pupils,
 - e. Basis for the division of classes into faster and slower groups,
 - f. Vocational guidance of pupils nearing the end of school life,
 - g. Data for reports to state boards and agencies.
3. Because of the fundamental value of statistics, this Conference recommends that wherever possible, schools and agencies provide for clerical assistance, so that reports of testing may be compiled and sent to a central point for comparative study. (At present Perkins is glad to act as research center.) With these contributions studies may be made which may improve present tests, and form the basis for the adaptation of new tests.

4. This Conference recommends that all schools and agencies for the blind secure the Manual for the Psychological Examination of the Adult Blind, published in 1951 by the Psychological Corporation, 522 Fifth Ave., New York 18 (selling at \$1.25), and consider the use of the following tests:

Intelligence Tests

Interim Hayes-Binet Intelligence Tests for the Blind, 1942
Wechsler-Bellevue Adult Intelligence Tests, Forms I and II
Wechsler Intelligence Scale for Children

Achievement Tests

Stanford Achievement Tests, Forms D-H
Metropolitan Achievement Tests, Forms R-U
Scholastic Aptitude Tests

Manipulative and Performance Tests

Minnesota Rate of Manipulation
Pa. Bi-Manual Worksample
Bauman Non-Language Learning Test

Interest and Personality Tests

Kuder Preference Record, Form BB
Bell Adjustment Inventory, Student Form
Bernreuter Personality Inventory
Bauman Emotional Factors Inventory

This Conference recommends that personality tests be used with caution, emphasis being placed rather upon careful interpretation in the light of the child's whole history, than upon the exact numerical results.

5. Because the test materials for the Scholastic Aptitude Test—large type braille and talking-book—are badly worn and difficult to read, and because pupils trained to listen to readers may not read braille with facility, the Conference recommends either

- a) that a *new* edition be prepared or
- b) that fresh materials be provided in the *present* edition and
- c) that the Examining Board be requested to consider the practicability of giving the whole test orally, using some recording method—wire, tape or disc.

6. The Conference recommends that at the Joint Meeting of the A. A. I. B. and the A. A. W. B. in June, 1952, in Louisville, a sectional meeting be arranged for the discussion of the practical values of testing the blind.

7. The Conference recommends that, if possible, arrangements be made for the publication and distribution of the paper read by Mrs. Kenneth Sands, Assistant Psychologist at the Children's Medical Center, Boston, on "The Psychological Appraisal of Young Blind Children."

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